

Mapping a Small Town

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Full Test of Mapping and AI Tools + Open Data

RapiD
RapID

mapwith.ai/rapid

QGIS



qgis.org

JOSM



josm.openstreetmap.de

Mapillary



mapillary.com

Absarokee, MT, USA

Ab-ZOR-kee “children of the crow”

- Small population

Has basic amenities:

- supermarket, gas stations
- restaurants, bars
- churches and schools

- In 2020, lightly mapped:

- most buildings are missing
- most businesses are unmapped
- Mapillary on the main street

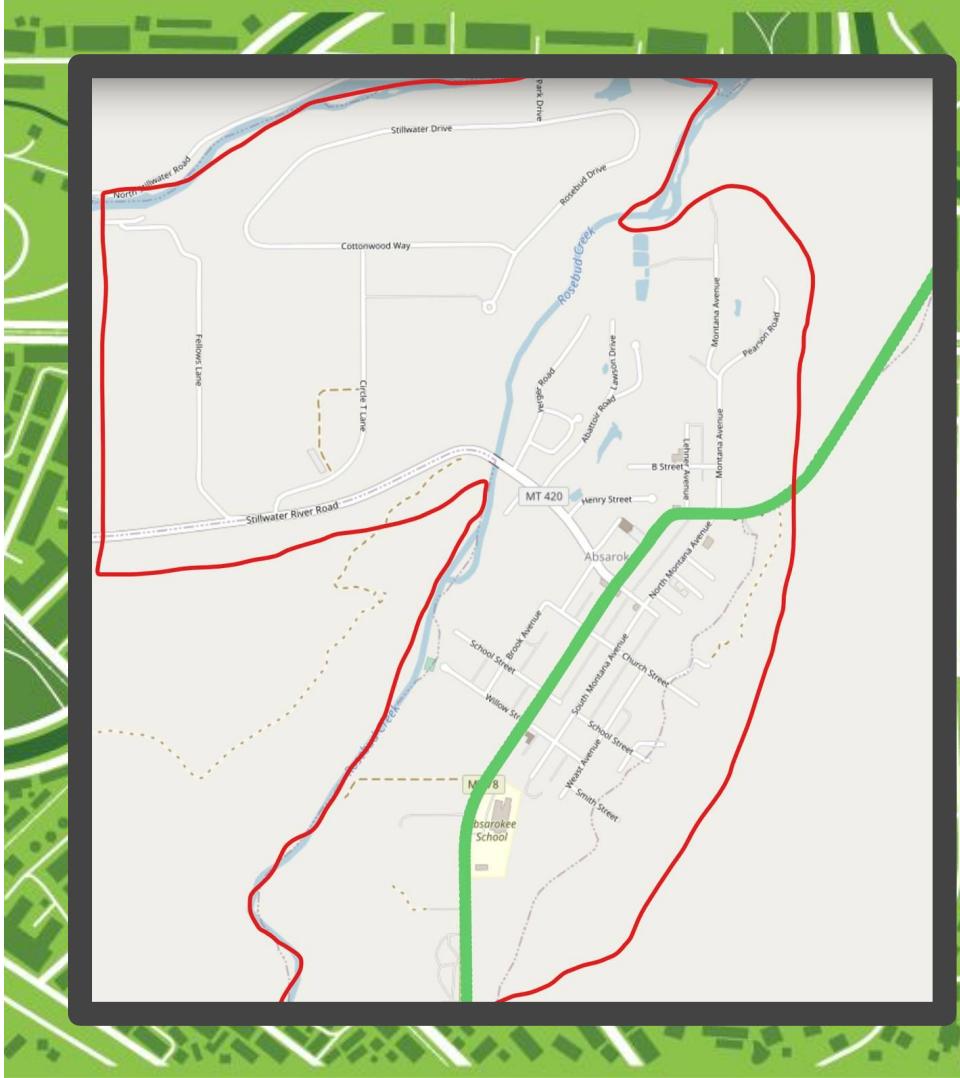
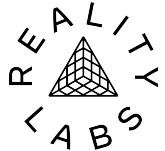


Area of Interest

Map with AI & open data!

Sources

- MapWithAI buildings
- MapWithAI roads
- Mapillary map features
- Mapillary traffic signs
- Mapillary imagery
- Satellite imagery



Goals

Add all
MapWithAI
Buildings

Capture extra
forward facing
imagery

Add all stop signs
from Mapillary

Add all
infrastructure
from Mapillary

Add parks and
recreation
infrastructure
from satellite

Add all missing
roads from
MapWithAI

Add speed limit to
all roads from
Mapillary

Add all sidewalks
from Mapillary +
satellite

Add businesses
from Mapillary
sign detections

Add land use from
satellite

Capture complete
360 degree
imagery

Add all
MapWithAI
Buildings

Add all
crosswalks from
Mapillary +
satellite

Add any POIs
visible in Mapillary
imagery

Add parking and
miscellaneous
data



Road Trip



Mapping Vehicle

OSMAnd
app
(Android)

GoPro
Hero6

Garmin
VIRB
360



 Mapillary

REALITY
< ABS

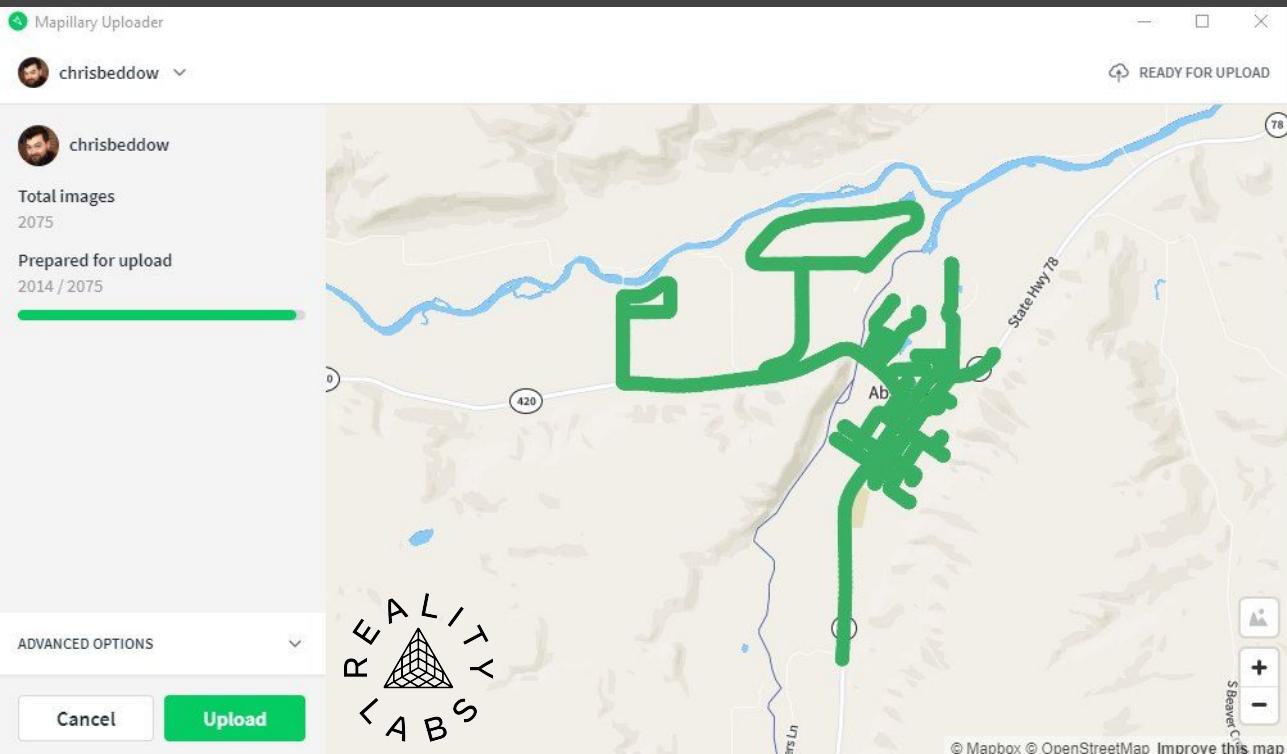


Camera close-up



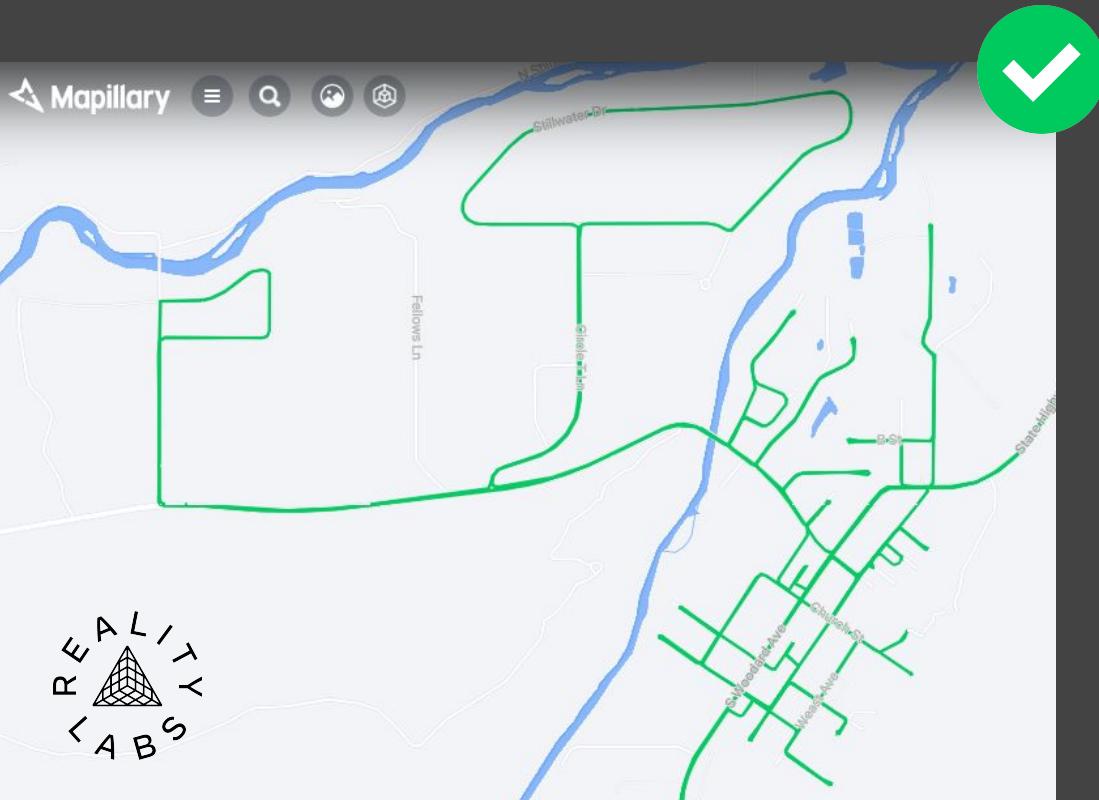
REALITY
RE_LA_BS

Upload to Mapillary



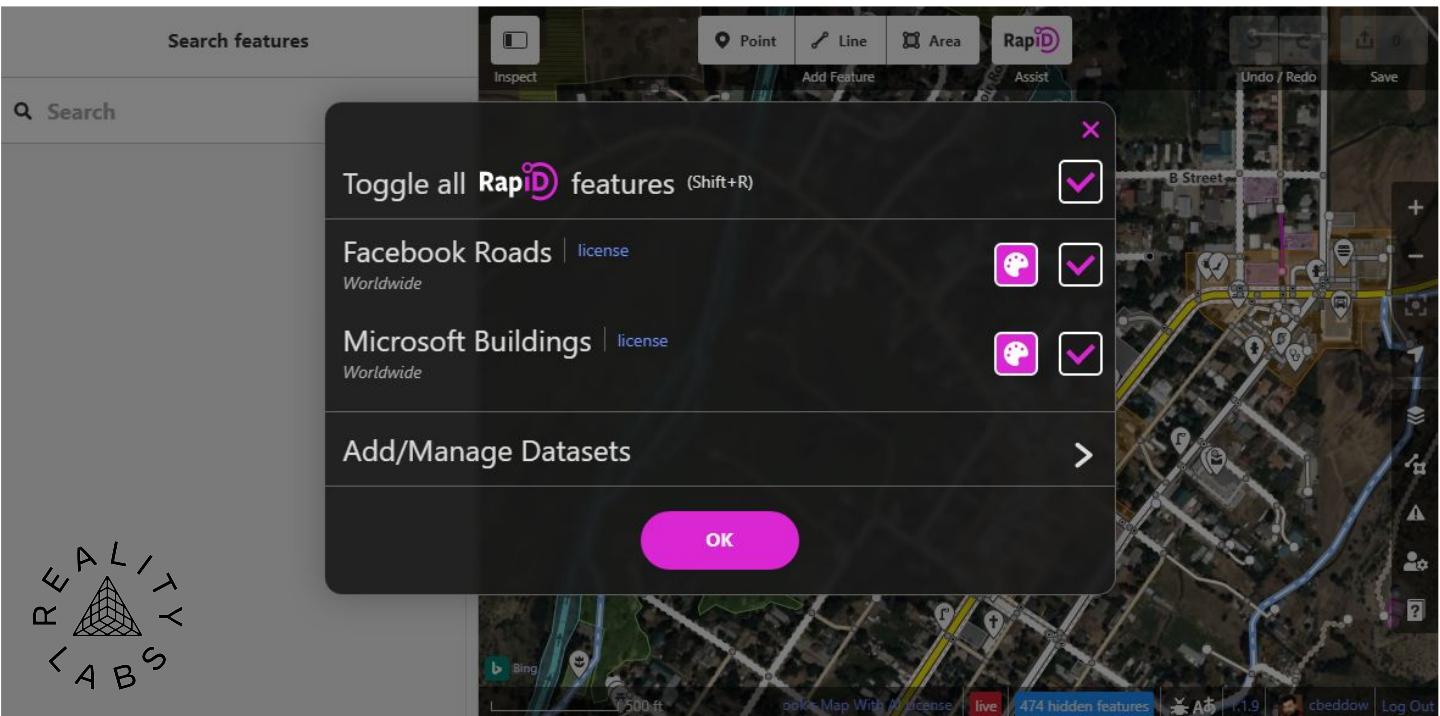
mapillary.com/desktop-uploader

Mapillary done!



mapillary.com/desktop-uploader

Mapping Buildings



☞ <https://mapwith.ai/rapid>

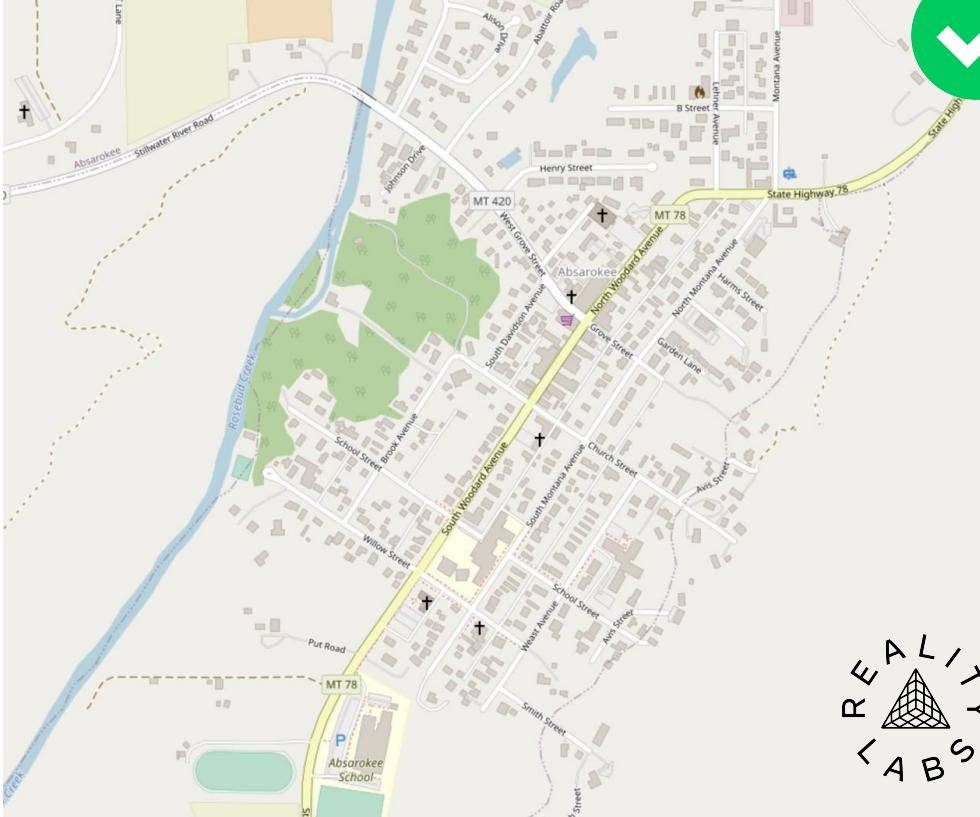
Mapping Buildings

Accept, reject, copy

- Accept accurate ones
- Adjust the shape slightly
- Rotate, square off
- Copy/paste missing ones!
- Check closely under trees
- Try all satellite layers



Buildings done!



Land Cover

Parking lots = easy win

- Trace boundary
- Add public/private
- No fees here
- Often *customers only*



Land Cover

Tennis courts

- Easily spotted
- Map as 1 polygon
- Add public/private



Land Cover

Pool

- Public/private?
- Parking nearby
- Operator? (city)



Land Cover

Farms and football

- Mark operator (high school)
- Name of stadium?
- Trace running track
- Bleachers?
- Add crop type



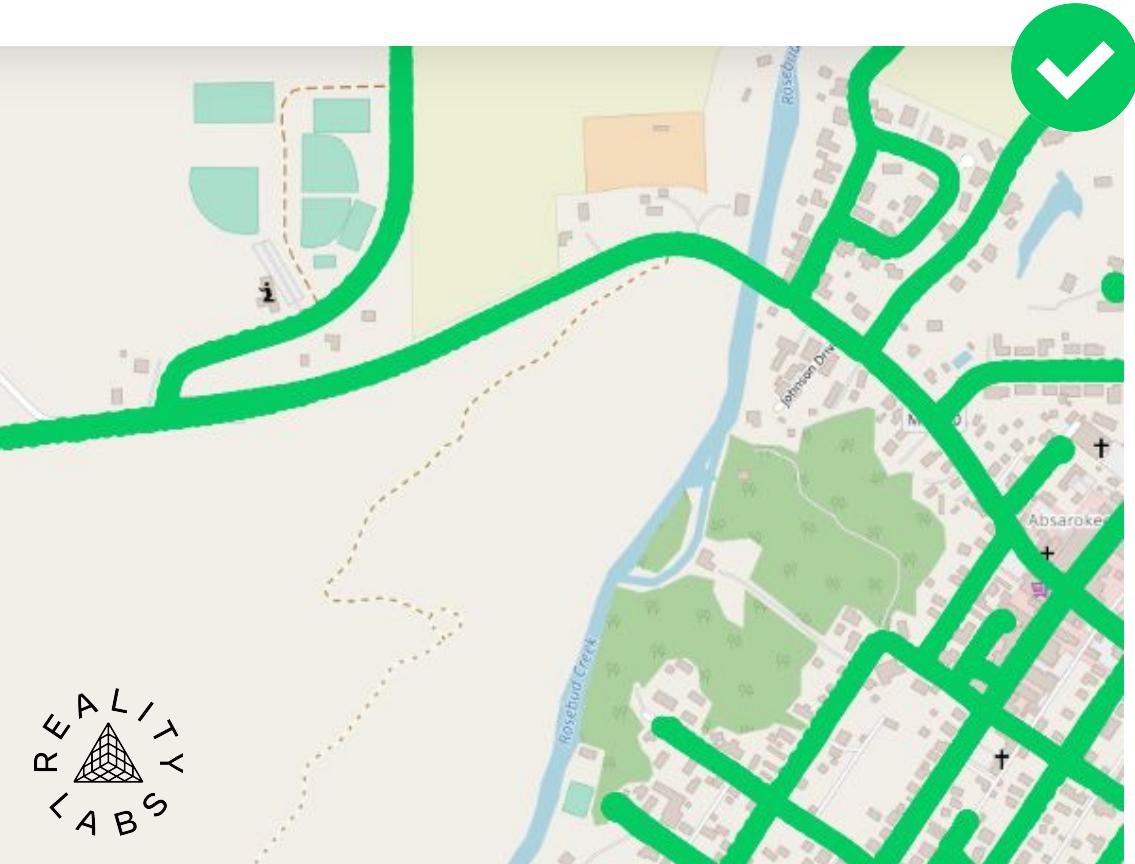
Land Cover

Natural features

- Forest boundaries
- Tree type?
- Fix river shape
- Cliffs, beach, wetland?



Land Cover done!



Sidewalks & Crosswalks

Mapillary images w/sidewalk

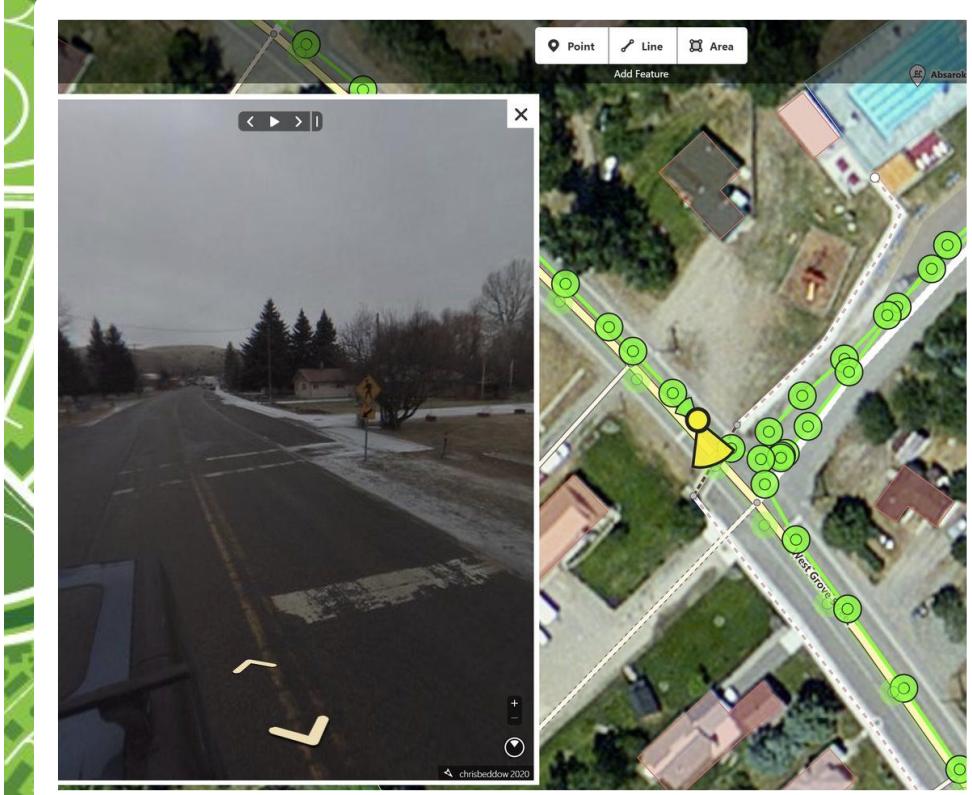
- AI detects sidewalks
- Almost every street!
- Easy to manually trace



Validate and Verify

Use Mapillary + satellite

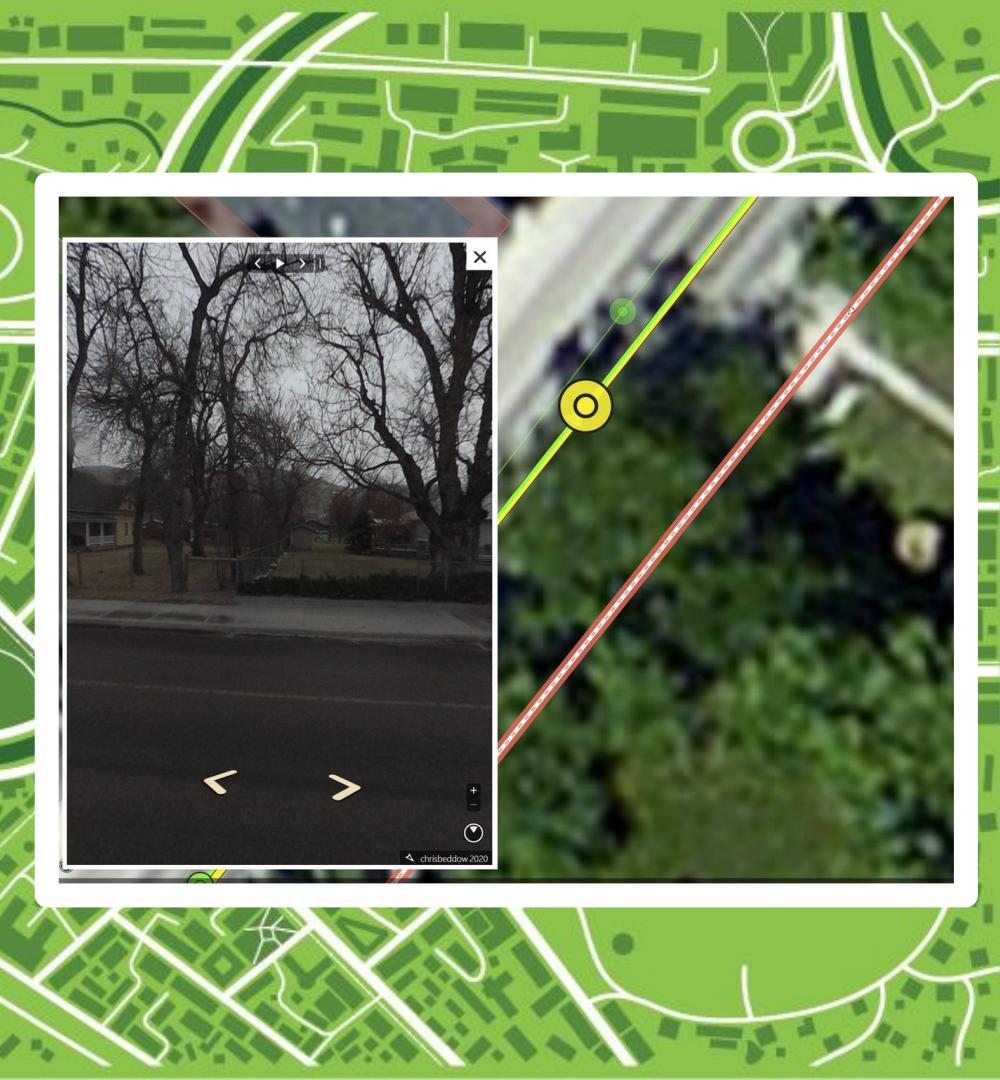
- Crosswalks visible in satellite
- Mapillary also detects them
- Trace unique lines for footways
- Use satellite as guide



Validate and Verify

Use Mapillary + satellite

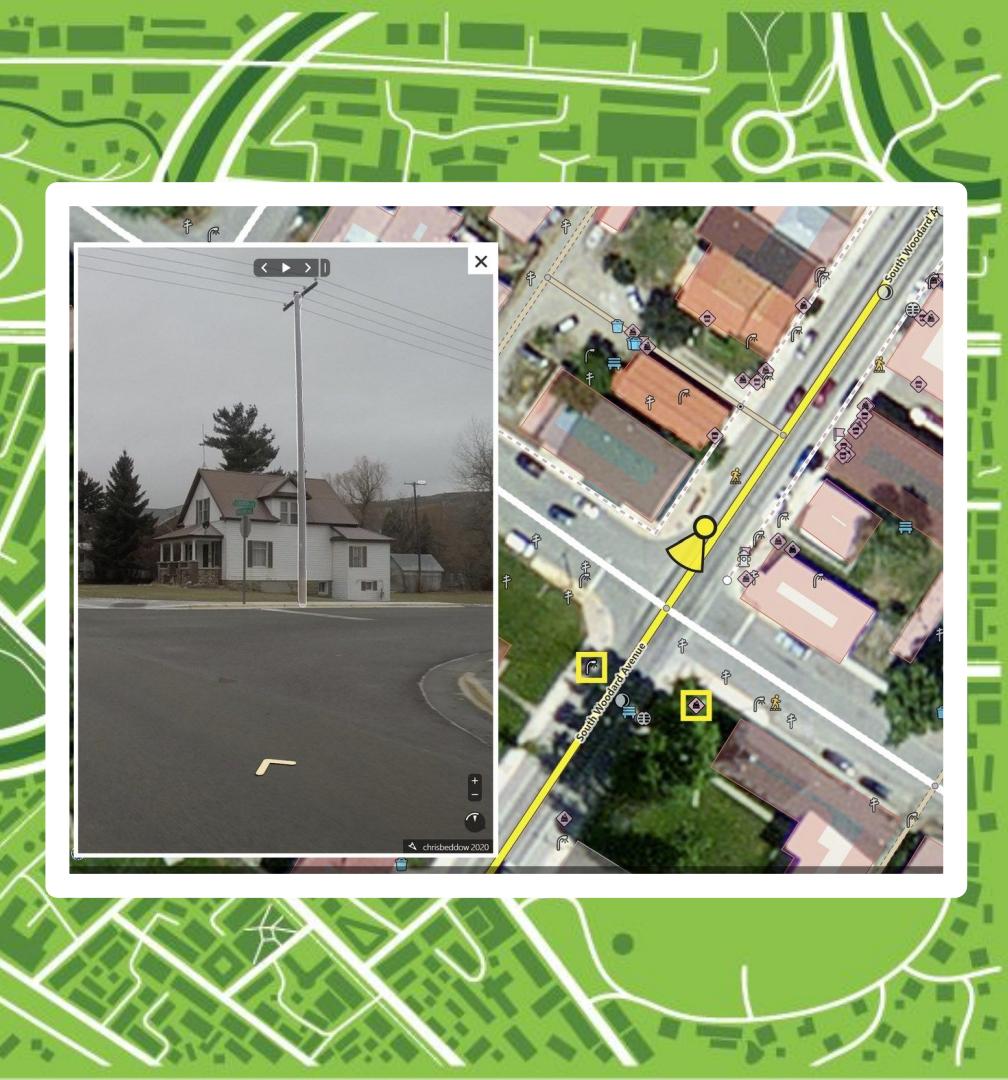
- Mapillary can see under trees
- Use satellite to estimate sidewalk distance from road



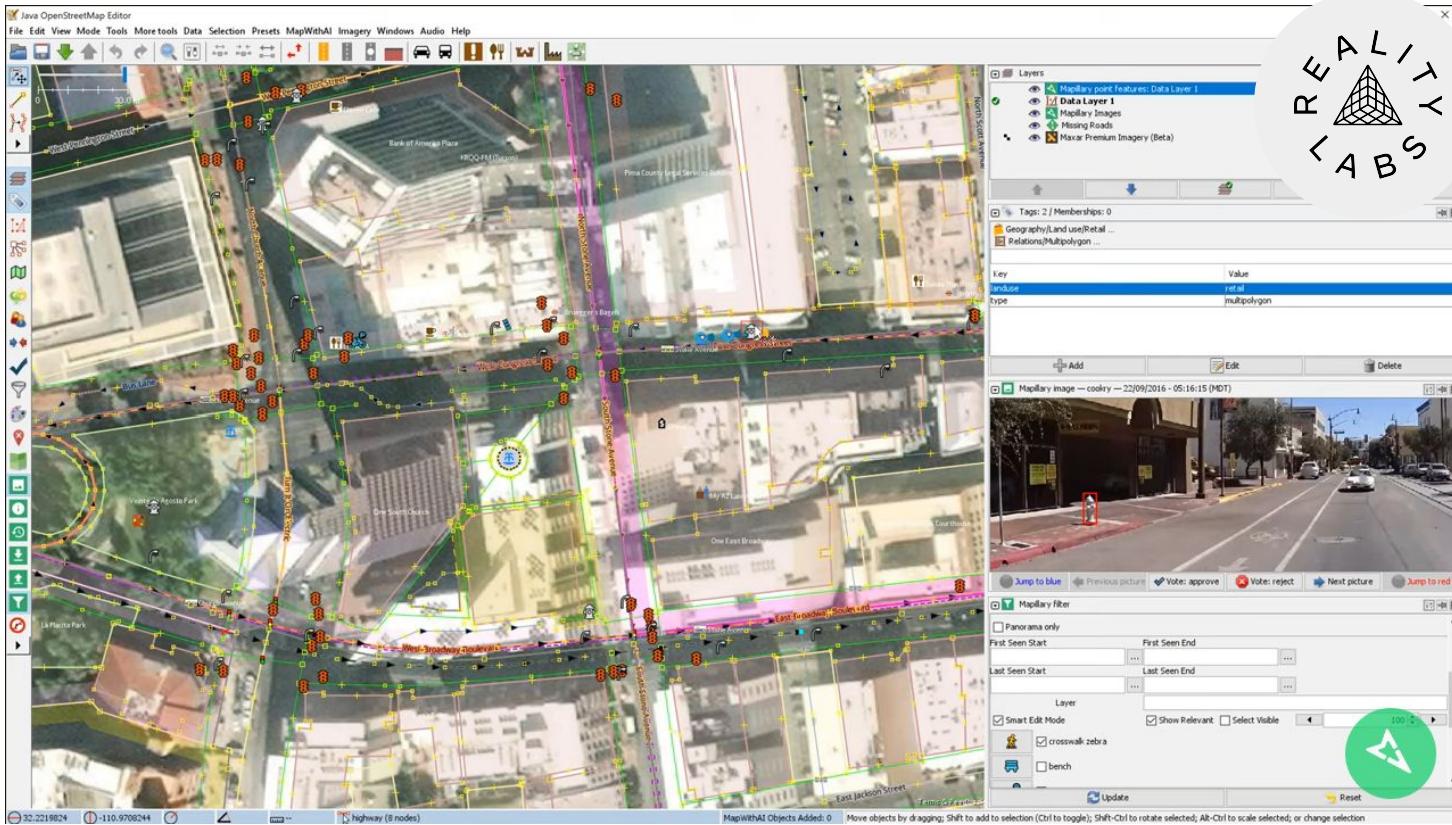
Utilities

Power / Utility Poles

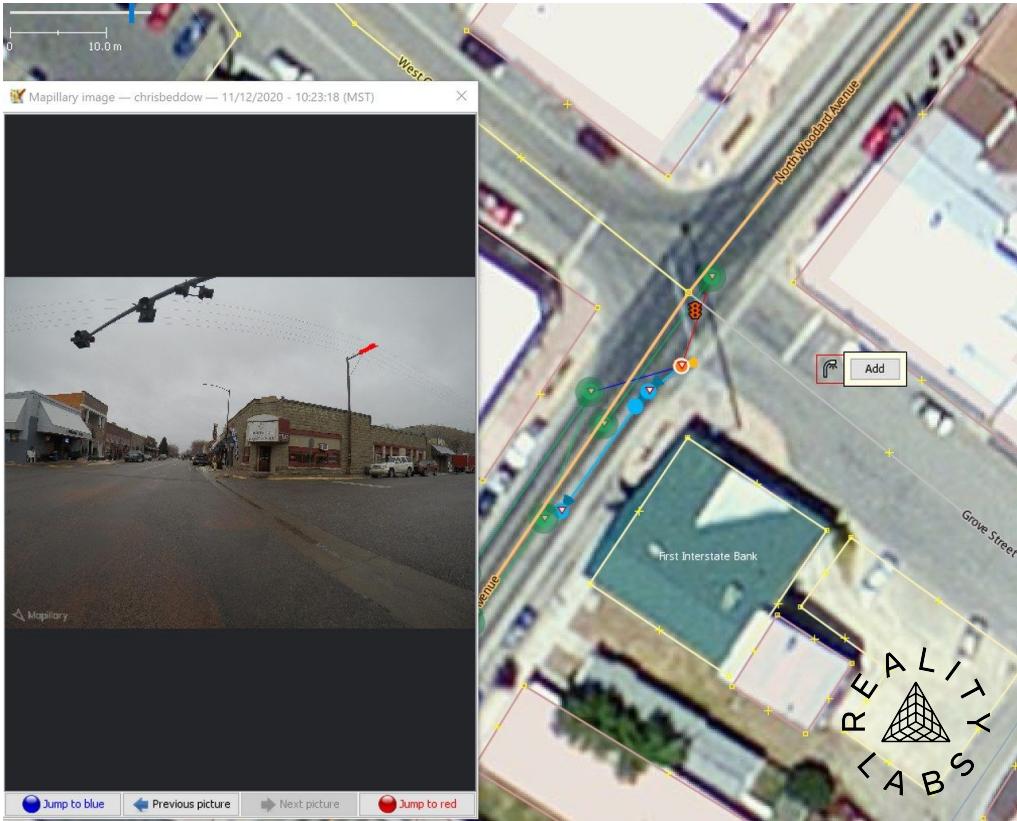
- Mapillary detects poles
- Can see wire connections
- Shadows sometimes visible on satellite



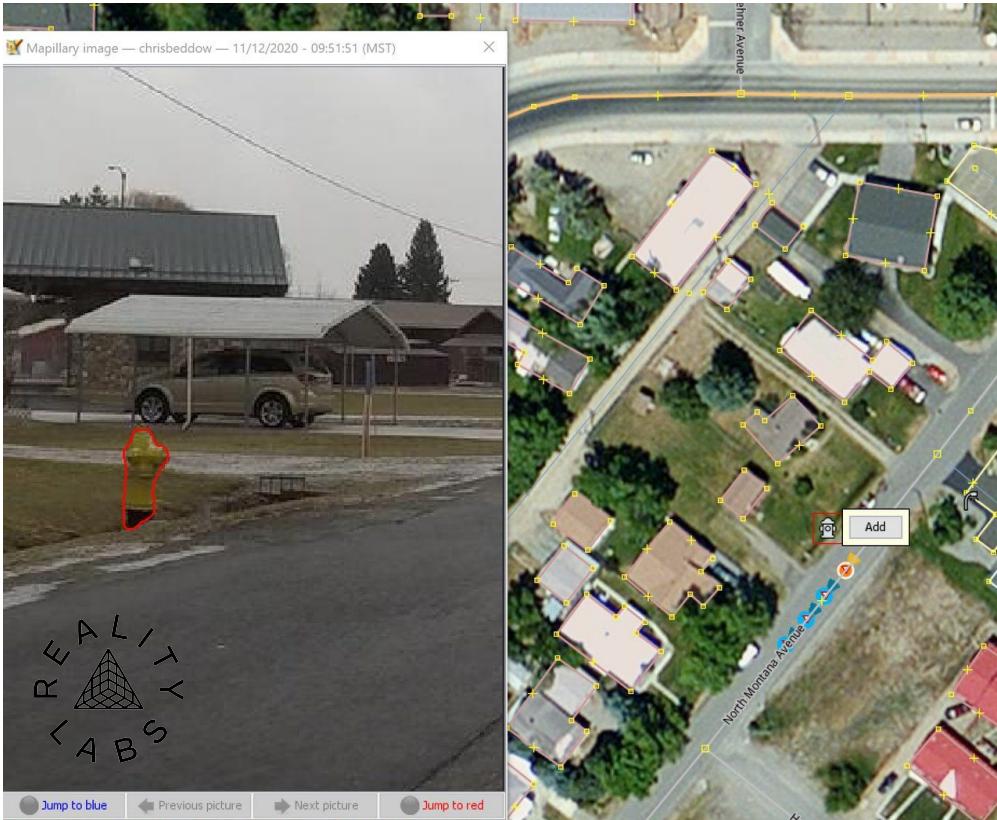
Utilities (JOSM)



Utilities (JOSM)



Utilities (JOSM)



Traffic Signs

Stop sign

- Detected by Mapillary
- Approx position
- Satellite shows stop lines
- Add directional tag



Utilities

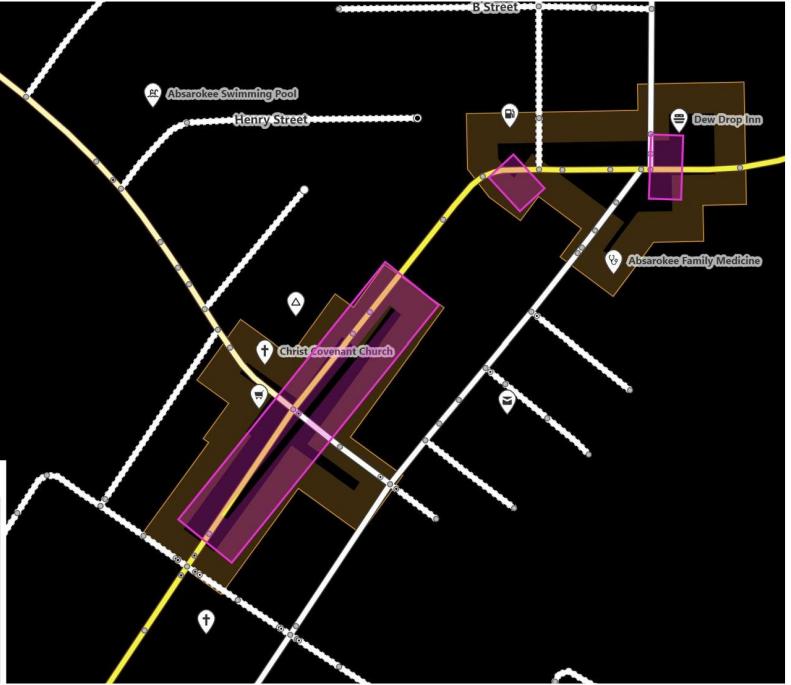
Power / Utility Poles

- Get `object--store--sign` from Mapillary API
- 73 items, DBSCAN cluster
- Visible main street clusters



Goals

REALITY
LABS



REALITY
LABS

Points of Interest

Feature Type

Real Estate Office

Fields

Name: Absarokee Homes & Land

Address: 123 Street Unit

City: State Postcode

Hours: Unknown...

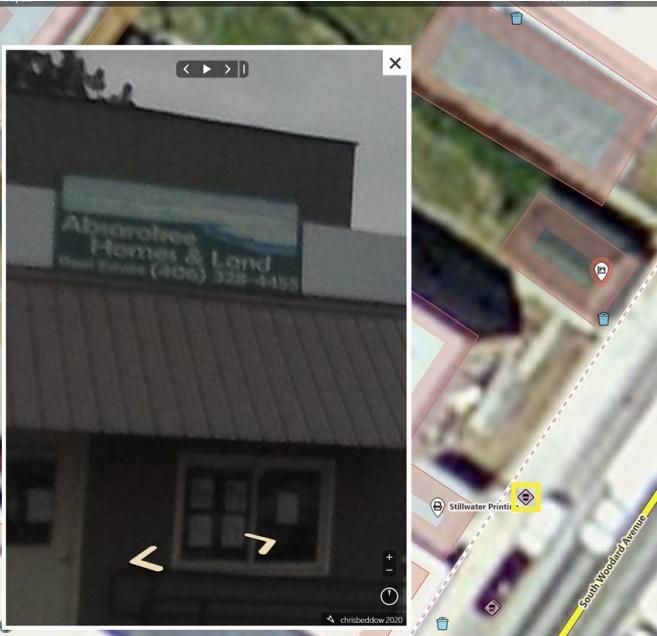
COVID-19 Pandemic Hours: open, off, same...

Telephone: +1-406-328-4453

Website: <https://example.com>

Add field: Air Conditioning, Baby Nursing Area, Brand...

Tags: office=guide name=Absarokee_Homes_Land



Feature Type

Tour Guide Office

Fields

Name: Absaroka River Adventures

Address: 123 Street Unit

City: State Postcode

Hours: Unknown...

COVID-19 Pandemic Hours: open, off, same...

Telephone: +1-406-328-7440

Website: <https://example.com>

Add field: Air Conditioning, Baby Nursing Area, Descript...

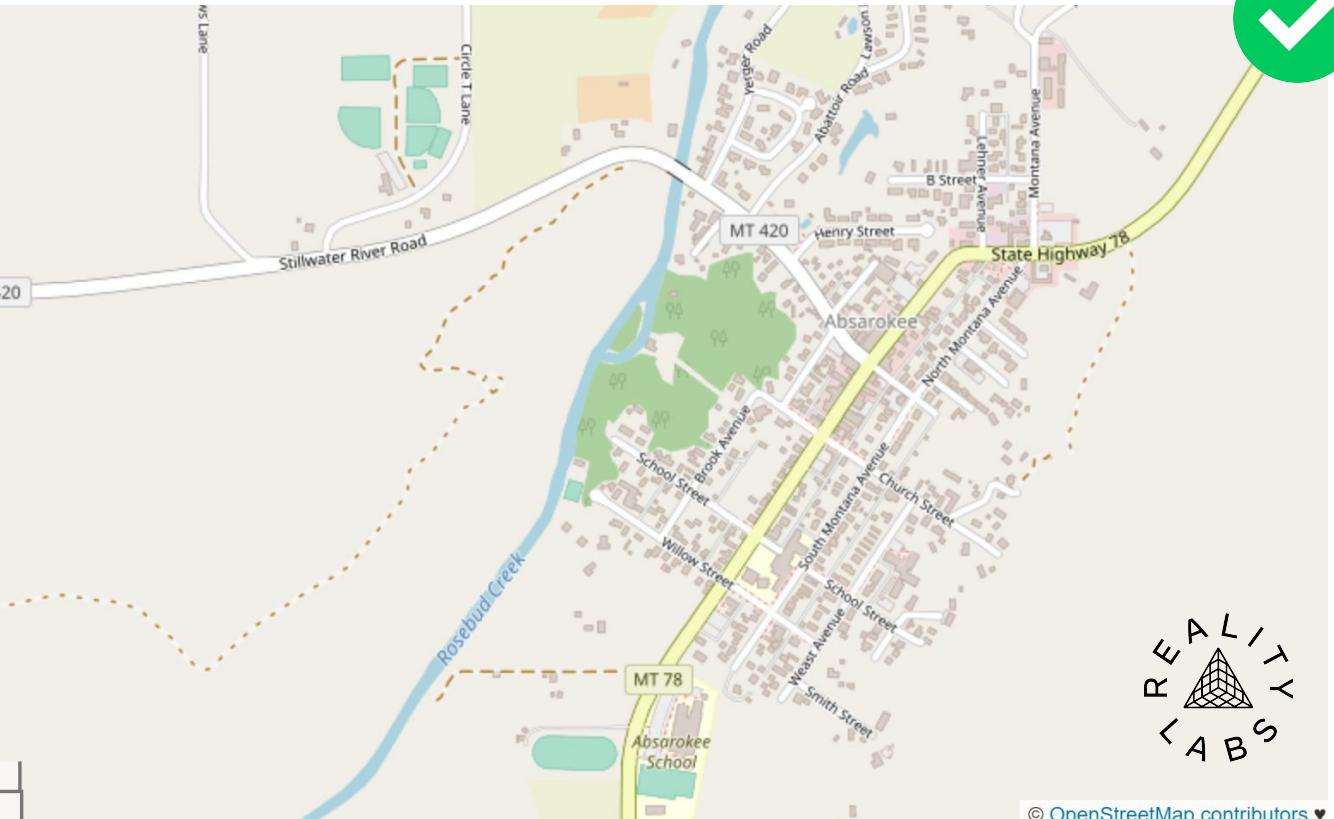
Tags: (3)

office=guide name=Absaroka_River_Adventures





Mapping done!



REALITY
ABS

© OpenStreetMap contributors ♥

Conclusion

One mapper, big impact

- It takes 1 person to map a town
- Same, for neighborhoods
- Mapillary is an excellent tool:
 - Capture images on the go
 - Review the images on the computer
- MapWithAI:
 - Use satellite, street-level detections
 - Always add detail and fixes too

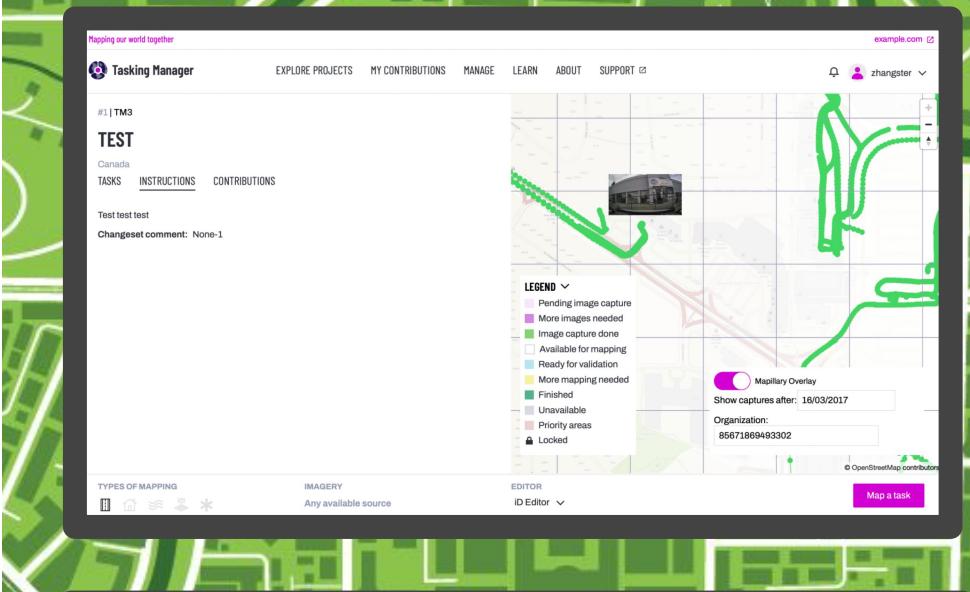


Next steps

The future of craft mapping

- Drones + OpenAerialMap
- MapWithAI Tasking Manager
- Mapillary Missions
- StreetComplete, Every Door
- Use all tools that can enhance one mapper's impact

REALITY
LABS



Q&A



@cbed32



cbed@fb.com



cbeddow

